



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/523,417	02/03/2005	Rainer Blum	264738US0PCT	1181
22850	7590	06/09/2006	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			CORDRAY, DENNIS R	
			ART UNIT	PAPER NUMBER

1731

DATE MAILED: 06/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/523,417	Applicant(s) BLUM ET AL.	
	Examiner Dennis Cordray	Art Unit 1731	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 05 May 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to: See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1 and 3-8 are rejected under 35 U.S.C. 102(b) as being anticipated by Kuo et al (5529699).

Kuo et al discloses a papermaking process comprising adding to the papermaking stock a retention aid comprising a water soluble cationic polymer and a microparticle (Abstract; col 9, lines 49-58). The cationic polymer is a copolymer comprising vinyl amine and diallyldialkylammonium salt monomers. The vinylamine is created by modifying polymerized vinylamide by partial or complete hydrolysis (col 6, lines 13-56; col 8, lines 33-58). The vinyl amide can be vinylformamide and the diallyldialkylammonium salt can be diallyldimethylammonium chloride (col 5, lines 45-48). The molecular weight of the cationic polymer can be from 10,000 to 2,000,000 (col 8, lines 27-31). The charge density can be from 1 to 24 meq/g (col 11, lines 14-16). The microparticles can be colloidal silica, bentonite or siliceous materials (col 9, line 62- col 10, line 2). The composition, molecular weight and charge density ranges significantly overlap and thus anticipate the claimed retention system.

Kuo et al discloses that the cationic polymer is added in an amount from 0.005% to 0.5% by weight based on the dry pulp, with a preferred range of 0.01% to 0.3%. The microparticles can be added in an amount from 0.05% to 3% and preferably from 0.1% to 1.5% by weight based on the dry pulp (col 10, line 62 to col 11, line 2). The cationic

Art Unit: 1731

polymer is preferably added first followed by the microparticles. Typically, both components are added close to the headbox prior to sheet formation (col 10, lines 49-53).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kuo et al.

Kuo et al does not specifically disclose that the cationic polymer can be polyacrylamide. Kuo et al does not disclose that the polymer and microparticles are metered into the papermaking stock.

Kuo et al does teach that retention systems are known that use cationic polyacrylamide and bentonite in which the polyacrylamide has a molecular weight from 500,000 to 30,000,000 and a charge density from 0.35 to 2.5 meq/gm (col 2, lines 14-22).

The art of Kuo et al and the instant invention are analogous as pertaining to polymeric and microparticle retention systems used in papermaking. It would have been obvious to one skilled in the art at the time of the invention to use polyacrylamide having the claimed molecular weight and charge density in the process of Kuo et al as a

Art Unit: 1731

known and functionally equivalent option. It would also have been obvious to meter in the components of the retention system to obtain a dispersed solution.

Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang et al (6379501) in view of Kuo et al.

Zhang et al discloses a papermaking process comprising adding to the papermaking stock a retention aid comprising a water soluble cationic polymer followed by a microparticle (Abstract; col 13, lines 1-20). The cationic polymer can be a homopolymer or copolymer comprising vinyl amine or polyacrylamide monomers (col 13, lines 39-53). The molecular weight of the cationic polymer can be from 500,000 to 15,000,000 (col 13, lines 54-56). The charge density is preferably from 0.1 to 4 meq/g (col 13, lines 63-65). The microparticles can be silicate materials (col 12, lines 61-62). The composition, molecular weight and charge density ranges significantly overlap and thus anticipate the claimed retention system.

Zhang et al discloses that the cationic polymer is added in an amount from 0.1 to 4 lb/ton (0.005% to 2% by weight) and preferably 0.2 to 2 lb/ton (0.01% to 0.1% by weight) based on the dry pulp (col 13, line 66 to col 14, line 1). The microparticles can be added in an amount from 0.1 to 20 lb/ton (0.005% to 1% by weight) and most preferably from 1 to 4 lb/ton (0.05% to 0.2% by weight) based on the dry pulp (col 12, lines 62-67).

Zhang et al does not disclose that the cationic polymer and microparticles are added after the last shear stage and before the headbox or that the retention

Art Unit: 1731

components are metered into the papermaking stock. Zhang et al also does not disclose that the polyvinylamine is made by hydrolysis of polyvinylformamide.

Kuo et al discloses that the cationic polymer is added first followed by the microparticles and that both components are typically added close to the headbox prior to sheet formation (col 10, lines 49-53). Kuo et al also discloses polyvinylamine made by partial or complete hydrolysis of polyvinylformamide (col 8, lines 33-58).

The art of Zhang et al, Kuo et al and the instant invention are analogous as pertaining to polymeric and microparticle retention systems used in papermaking. It would have been obvious to one skilled in the art at the time of the invention to add the claimed cationic polymers and microparticles after the last shear stage in the process of Zhang et al in view of Kuo et al as a typical functionally equivalent addition point. It would also have been obvious to meter in the components of the retention system to obtain a dispersed solution. It would have been obvious to hydrolyze polyvinylformamide to obtain polyvinylamine as a well known and functionally equivalent process. Obtaining the claimed first pass retention and first pass ash retention with a reduced amount of cationic polymer after the last shear stage with respect to the amount of polymer needed when added before the last shear stage would be obvious since the disclosed polymer and microparticle system can have the same composition as the claimed invention. Where the claimed and prior art apparatus or product are identical or substantially identical in structure or composition, a *prima facie* case of either anticipation or obviousness has been established. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). In other words, when the structure recited in the

reference is substantially identical to that of the claims, the claimed properties or functions are presumed to be inherent.

***Response to Arguments***

Applicant's arguments filed 5/5/2006 have been fully considered but they are not persuasive.

Applicant admits on pp 6-8 that Kuo et al discloses cationic polymers with the claimed ranges of molecular weight and charge density but recites preferred ranges outside of the claimed range for optimum performance. Applicant argues that, at best, Kuo et al could be available as a reference under 35 U.S.C. 103(a). Applicant also argues that, to anticipate the use of cationic polymer with the claimed charge density using Kuo et al would involve picking, choosing and combining various disclosures not directly related to each other by the teachings of the cited reference. A reference is not limited to its preferred embodiment, but must be evaluated for all of its teachings, including its teachings of non-preferred embodiments. In re Burckel, 592 F.2d 1175, 201 USPQ 67 (CCPA 1979). Kuo et al clearly discloses ranges of molecular weight and charge density that significantly overlap the claimed ranges; no picking and choosing from additional references was needed or used. Applicant argues that there would be no motivation to use only polymers with charge density in the claimed range. Applicant also argues that one of ordinary skill in the art would not appreciate or predict the significance of saving of retention aid materials achieved by the instant invention. The amounts, and preferred amounts, of addition disclosed by Kuo et al for both cationic polymer and anionic material overlay almost completely the claimed ranges. "Where

Art Unit: 1731

the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.” In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955). In fact, Kuo et al teaches that those of ordinary skill in the art can readily suitable dosage amounts by ordinary means (col 10, lines 54-59).

Applicant argues on p 8 that Kuo et al only discloses that typically both components of the polymer/microparticle system are added close to the headbox prior to sheet formation and that the use of “close to the headbox” is not synonymous with “after the last shearing stage” and any finding that they are synonymous is inconsistent with adding the copolymer before the microparticle. Lamar et al (4964955) teaches that “close to the headbox” is after the last point of high shear prior to sheet formation (col 13, lines 15-18). Small et al (5690789) teaches that a point close to the headbox is after the conditions or heavy shear so that agglomerated or comminuted material is not redispersed (col 2, lines 42-46), or in other words, after the last high shear stage. From the teachings of Lamar et al and Small et al, one of ordinary skill in the art would recognize that “close to the headbox” can be synonymous with “after the last point of high shear.”

Applicant argues on pp 8-9 that Zhang et al explicitly discloses that the flocculant, such as a cationic polymer, is added preferably before the last shearing stage. As above, a must be evaluated for all of its teachings, including its teachings of non-preferred embodiments. Zhang et al discloses that the additive (flocculant) can be added before or after the addition of the silicate complex, but prefers that the silicate be

Art Unit: 1731

added after the additive, then recites that the flocculant is preferably added before the last shearing stage (col 13, lines 1-26). However, the use of “preferably” indicates that in some non-preferred embodiments, the flocculant can be added after the last shearing shearing stage and before the silicate. Kuo et al teaches addition of both components close to the headbox prior to sheet formation, which (as discussed in the previous paragraph) can mean to one skilled in the art “after the last point of high shear.” Thus, addition of both components after the last point of high shear and prior to sheet formation would be obvious to one skilled in the art as a functionally equivalent option.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Art Unit: 1731

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dennis Cordray whose telephone number is 571-272-8244. The examiner can normally be reached on M - F, 7:30 -4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



DRC



STEVEN P. GRIFFIN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700